Amendments to the Claims:

Listing of Claims:

1. CANCELLED

2. (ORIGINAL): A method of fabricating an integrated patch clamp device comprising:
preparing a mold by making height patterns defining narrow patch channels using deep etching;
adding patterns for wide connection regions;
introducing a settable material into the mold and curing;
detaching the set material from the mole;
placing holes for connection of tubes;
connecting tubes to reservoirs, via said holes, to load cells and/or electrolyte solutions and to apply suction to patch channel.

3. (CURRENTLY AMENDED): The method of claim 2 further wherein:
said mold is constructed from one or a combination of:
silicon;
ceramic;
metal or metal alloy,.

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7. (ORIGINAL): The method of claim 2 further wherein:
said patterns defining the narrow patch channels are formed using deep reactive ion etching; and further patterns are added for wide connection regions using photoresist.

8. (ORIGINAL): The method of claim 2 further wherein:
said moldable material comprises polydimethylsiloxane (PDMS) and a curing agent.

9. (CURRENTLY AMENDED): The method of claim 2 further comprising:
subsequently bonding a molded device to a thin PDMS layer which was spin cast and then cured or partially cured onto a glass substrate.

10. CANCELLED

11. (ORIGINAL): A cell trapping device comprising:
a substrate;
a main reservoir able to hold cells in a fluidic medium;
at least one lateral opening in a side of said main reservoir;
at least one trapping channel operatively connected to said at least one lateral opening;
such that a cell in said main reservoir can be selectively immobilized at said lateral opening by negative pressure in said trapping channel.

12. (ORIGINAL): The device according to claim 11 further wherein:
said substrate is a three dimensional structure comprising a length, a width and a thickness, said thickness being a smallest dimension; and
said side of said main reservoir is roughly parallel to said thickness.

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14. (ORIGINAL): The device according to claim 11 further comprising:
at least two electrical connections for measuring electrical characteristics between said main reservoir and said trapping channel.

15. (ORIGINAL): The device according to claim 11 further wherein:
said lateral opening has effective dimensions of less than about 3 microns by 3 microns.

16. (ORIGINAL): The device according to claim 11 further comprising:
at least three lateral openings in said main channel, said lateral openings spaced less than 40 microns apart.

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18. (ORIGINAL): The device according to claim 16 further wherein:
said lateral openings are electrically connected to operate as independent patch channels and are arranged in a horizontal plane allowing multiplexed parallel patch sites that are less than 30 microns apart.

19. (CURRENTLY AMENDED): The device according to claim 17 further wherein:

patch channels are in a horizontal plane with multiplexed parallel patch sites having a distance between patch sites of between one hundred μm and one thousand μm.

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21. (CURRENTLY AMENDED): A multiple cell trapping device according to claim 11 further comprising:

~~a substrate;~~

a main reservoir able to hold cells in a fluidic medium running parallel to the largest dimensions of said substrate;

a plurality of lateral openings in sides of said main reservoir, at least some of said openings operatively connected to a plurality of trapping channels;

a microfluidic input for introducing cells in a fluid to said main reservoir;

one or more microfluidic trapping connections for applying negative pressure to said lateral openings;

such that cells in said main reservoir can be selectively immobilized at said lateral openings.

22. (ORIGINAL): The device according to claim 21 further wherein:

said substrate is formed of an elastomer;

said lateral openings have a cross section less than about 3 microns by 3 microns; and

said lateral openings are operatively connected to trapping channels with cross sections less than about 3 microns by 3 microns.

23.-24. CANCELLED

25. (ORIGINAL): A device allowing fast application and removal of reagents from a sample area employing microfluidic delivery comprising:

a sample area;

a main channel; and

one or more an injection channels;

wherein in operation, a generally constant fluid flow is supplied to the main channel and said injection channel is being driven by a pressure as a function of time.

26. (CURRENTLY AMENDED): The device according to claim ~~23~~ 25 further wherein said sample area may contain trapped cells, adherent cells on the device substrate, and/or other reaction loci such as microarray spots.

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28. (CURRENTLY AMENDED): The device according to claim ~~23~~ 25 further wherein:

said main channel and said injection channels have a lateral configuration where all the channels are in roughly horizontal planes;

said one or more injection channels comprise an array of a number of injection channels,.

29.-30. CANCELLED

31. (ORIGINAL): A device for connecting a microfluidic assay chip to external electrical and fluidic systems comprising:

an arrangement of hollow cylindrical electrical conductors connected to a plurality of electrical connectors.

32. (CURRENTLY AMENDED): The device according to claim 31 further wherein:

said conductors are arranged so as to operatively mate with fluidic connections on said assay chip;

said conductors are arranged so as to operatively mate with fluidic couplings to an external fluidic system;

said electrical connectors are arranged so as to operatively mate with an electrical socket of an electronic testing system;

as fluid flows through said hollow electrodes, electrical and fluidic connections are established; and

said hollow electrodes are reusable with multiple microfluidic chips.

35. (CURRENTLY AMENDED): The device according to claim 31 further wherein:

said hollow cylindrical electrical conductors are comprised of one or more of:

Ag/AgCl;

a metal/metal-chloride alloy;

a conducting polymer;

a metal;

a conducting ceramic.

36.- 40. CANCELLED

41. CANCELLED

42. CANCELLED

43. CANCELLED